



FOX RIVER CURRENT

Update from the Lower Fox River Intergovernmental Partnership

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FWS Restoration and Compensation Plan Released

By Larry Dean, U.S. Fish and Wildlife Service

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In late October, the U.S. Fish and Wildlife Service (FWS) released a Restoration and Compensation Determination Plan (RCDP) for the Fox River and Green Bay environment. FWS also announced a 45-day public comment period on its RCDP and on all of the pathway, injury, and economics determinations that were released in 1998 and 1999 (available at <http://www.fws.gov/r3pao/nrda> ). This RCDP culminates six years of work on the FWS' Green Bay Natural Resource Damage Assessment (NRDA) by describing the type and scale of environmental restoration required to make the public whole for several decades of Fox River paper mill polychlorinated biphenyl (PCB) releases, and the damages to the resources for which the FWS, on behalf of federal and tribal agencies as co-trustees, asserts trusteeship.

FWS Assessment Manager David Allen noted, "The natural resource co-trustees have worked long and hard to assemble the relevant scientific information and to coordinate with local environmental restoration experts to ensure that the right kind and amount of restoration can be put in place for the public. I hope that we can now move quickly to assist with the cleanup decision and the design of restoration."

The FWS' RCDP ties together the previous assessment work on PCB releases, PCB pathways, natural resource injuries, economic damages, and required environmental restoration. In particular, the RCDP describes how environmental restoration programs, such as habitat preservation and restoration, make the public whole for decades of

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problems caused by PCB's. This RCDP also describes the co-trustees' methods that will be used to determine the amount of restoration required after the cleanup decision is announced. In effect, the RCDP serves as a blueprint for how restoration decisions will be made by the co-trustees in conjunction with the cleanup decision.

The 45-day public comment period began on October 25. Copies of the RCDP or any of the previous determinations may be requested from and written comments may be sent to: David Allen, U.S. Fish and Wildlife Service, 1015 Challenger Court, Green Bay, WI 54311.

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56/57 Meeting Draws 30

By Greg Swanson, Wisconsin Department of Natural Resources

About 30 people had the opportunity to discuss the Sediment Management Unit (SMU) 56/57 project with representatives from the Wisconsin Department of Natural Resources (DNR), the U.S. Environmental Protection Agency (EPA), and Fort James Corporation and their contractors and consultants at an informal availability session, Wednesday, September 13 at Green Bay's Brown County Library.

At the time of the meeting, about 14,000 cubic yards of contaminated sediment had been removed from the riverbed and treated. The treatment process had returned about 22.5 million gallons of clean, treated water to the Fox River and generated 15,000 tons of dewatered sediment. Attendees at the meeting were also shown current pictures of the equipment operating at the site, maps depicting the area of sediment removal and the step-by-step treatment process. DNR and EPA representatives and project contractor representatives answered technical questions from small groups or individuals throughout the three-hour session.

Dredging in SMU 56/57 is expected to be completed by early November. Since final data on the project is not anticipated to be available until later that month, the availability session scheduled for November 8 has been canceled. In addition, the meeting scheduled for December 5 will be changed from an availability session to a project wrap-up meeting. At that time, there will be a short presentation about the project which will include the information available. There will also be a question and answer period following the presentation. The project wrap-up meeting will take place at 7 p.m., Tuesday, December 5 at the Brown County Library, Lower Level, 515 Pine St., Green Bay.

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Technical Corner...

SMU 56/57 Shoreside Sediment Treatment

By Rich Trotto, Wisconsin Department of Natural Resources

(In response to reader requests, the Fox River Current will regularly feature articles on the technologies used to address contaminated sediment.)

In issuing its report evaluating the effectiveness of remediation dredging in the Deposit N project on the Lower Fox River near Little Chute, the Water Resources Institute of the University of Wisconsin concluded that, "Shoreside processing was an effective means of concentrating and permanently removing contaminated sediments from the river."

The report by the institute's Fox River Remediation Advisory Team found that shoreside processing removed some 99.99 percent of the mercury and polychlorinated biphenyl (PCB) mass from the incoming slurry mixture. In fact, the more than 11 million gallons of water returned to the river during the project contained a total of less than one gram of PCBs after shoreside processing, according to the report.

The shoreside processing operation at the Sediment Management Unit (SMU) 56/57 project is demonstrating similar effectiveness, and a detailed look at the operation reveals how every step in the process is designed to remove as much



A worker checks the semi-truck size feed tanks that keep the dredge slurry suspended prior to pressing.

contamination as possible from the water before returning it to the river.

The dredging operation in the river is only the first step in the process. From the river, the dredged slurry of water and sediment is pumped onshore, passing first through a vibrating shaker screen that takes out debris such as rocks and large clumps of sediment.

The slurry then passes through a hydrocyclone, which is an apparatus that extracts sand from the slurry. The hydrocyclone keeps material lighter than the sand suspended in the water. The sand settles out and is collected and sent to a landfill.

The slurry is then pumped into one of several feed tanks. These semi-truck size tanks have agitation pumps that prevent the sediment from settling out of the water before it goes through the pressing process.

From the feed tank the slurry is pumped on to the presses. Along the way, a polymer solution is added to the slurry. The polymer solution is a chemical compound that helps the PCB molecules adhere to the sediment rather than being released into the water.

The treated slurry is then pumped into one of several large presses, each containing up to 150 plates. These are covered with a porous fabric that allows water to escape when the sediment is squeezed between the sides of the plates. As the plates come together, the water is literally pressed out of the slurry and separated from the sediment. Each press has the capacity to treat eight cubic yards of sediment per run.

The now nearly dried sediment, called "dewatered presscake," is then loaded into dumptrucks for transport to the landfills. The



A remediation worker (background) tends to one of over a hundred individual plates contained in each of the large presses. The fabric lined plates squeeze the water out of the sediment, leaving the dewatered presscake (inset).



A truck loaded with sediment is pressure-washed prior to departure for the landfill.

loading operation is designed to assure that the trucks leaving the site do not deposit any sediment on the roadway during the trip to the landfill. The platform where the trucks are loaded is situated outside the containment area. A loader scoops the sediment from a pile inside the fenced area, lifts it carefully over the barrier, and deposits it into the truck. Each truckload is then covered with a tarp and the truck is pressure-washed before leaving the site.

Meanwhile, the extracted water begins its return to the river. The water first passes through five-micron size bag filters, which filter out particles larger than five microns. A micron is one-millionth of a meter, or one-twenty five thousandth of an inch. From there, the water is pumped through large tanks containing first sand, then activated carbon, which further filters out the contaminants.

The treated water then passes through one-micron size bag filters and is deposited into the effluent tank. The water being returned to the river after going through the treatment process is known the "effluent discharge." The water is then pumped out of the tank and back to the river. Along the way the water is monitored and samples are taken to determine the water quality of the effluent.

At the point the water re-enters the river, the PCB concentration is less than .23 parts per billion (ppb), which is cleaner than the water already in the river. When the project is completed, all the filtering material, including the sand, carbon, and bag filters will also be sent to the landfill for disposal.



A worker checks the effluent tank holding the treated water after it has passed through the large sand and carbon filter tanks (upper right), and the bag filters.



An effluent tank holds treated water prior to release to the river.

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Spotlight On...

New Bedford Harbor

By Susan Pastor, U.S. Environmental Protection Agency

(In response to reader requests, the Fox River Current will regularly feature other river projects similar to the Lower Fox River.)

The New Bedford Harbor, located in Bristol County, Massachusetts, 55 miles south of Boston, is another East Coast site that is contaminated with polychlorinated biphenyls (PCB's) and heavy metals. The 18,000-acre site became contaminated when area manufacturers used PCB's in producing electric devices from 1940 to the late 1970s, when the use of PCB's was banned by the U.S. Environmental Protection Agency (EPA). The site was placed on EPA's Superfund list in 1983.

During that time, factories discharged industrial waste directly into the harbor and indirectly via the New Bedford sewerage system. These practices caused the harbor to be contaminated in varying degrees for at least six miles, from the upper Acushnet River into Buzzards Bay. According to measurements taken at the site, tides transport daily up to one-half pound of PCB's from the upper harbor to the lower harbor and, eventually, into Buzzards Bay.

Six companies settled with EPA for approximately \$100 million in 1991 and 1992. This settlement was for funding subsequent investigations, cleanups, and natural resource damages. Since then, EPA has been moving forward with a variety of actions, according to EPA Region 1 literature and Web site.



The Confined Disposal Facility along the Acushnet River is the location of the cell previously used to store dredged "hot-spot" sediment, the water treatment plant, and administrative facilities

Like the Lower Fox River vicinity, the New Bedford area is heavily populated, with over 100,000 people living within three miles of the site. A separate five-acre northern portion of the site, referred to as the "hot spot area," was contaminated with PCB levels as high as 200,000 parts per million (ppm). This compares to less than 4,000 ppm in the remainder of the site.

EPA Region 1 staff members share concerns about bioaccumulation of PCB's in the food chain with their Region 5 counterparts who work on the Lower Fox River. Because the major public health risk is eating contaminated seafood, the area has been closed to fishing and lobstering since 1979. Levels of PCB's in some fish and lobsters exceed the Food and Drug Administration's limit for PCB's in edible seafood. According to studies, this can cause an increased risk of cancer and other diseases for people who repeatedly eat PCB-contaminated seafood from the site.

EPA Remedial Project Manager David Dickerson, who has worked on the project for six years, has seen people continue to fish in the area despite repeated warnings. "State fish closures are routinely not abided by," he said. "Unfortunately, some people are just going to fish there, no matter what."

As is the case with the Lower Fox River, the New Bedford area also has a multicultural population that presents language barriers. To warn people of the dangers from eating the fish and seafood, EPA has posted a variety of signs along the shoreline, including some using only international symbols. "We do what we can to get the word out," Dickerson continued, "but people will stand in front of a sign and fish."

In addition to signs, EPA routinely meets with community groups and governmental entities. A mediated community forum process was also used to coordinate the cleanup with as many people as possible. Like the Lower Fox River, the New Bedford site also has a group that has received an EPA Technical Assistance Grant. The group, the Hands Across the River Coalition, has been helpful, Dickerson said. "They cosponsored full-page ads over the summer," he explained. "They also convene community meetings and help us do our outreach."

While EPA was busy warning citizens of the hazards of the site, it was also busy cleaning them up. The site has been worked on in four stages since 1982. Since the initial steps of erecting signs and fences, beginning in 1982, the hot spot area, upper and lower harbor areas, and Buzzards Bay have been or are being addressed. The hot spot area was dredged in 1994 and 1995, removing 14,000 cubic yards of PCB-contaminated sediment from the harbor. The dredged sediment was temporarily stored in a lined and covered holding pond while EPA worked with the community to find an alternative to on-site incineration, which was the treatment solution originally proposed. The sediment was dewatered and sent to a permitted landfill earlier this year.

The majority of the site's contamination is in the upper and lower harbor areas. EPA selected a final cleanup plan for these areas in 1998 after years of study, public debate and consensus building. It involves dredging and containing approximately 500,000 cubic yards of PCB-contaminated sediment located in an area of about 200 acres. Dredged sediment will be dewatered and placed in four shoreline confined disposal facilities (CDFs). Construction of the first CDF is scheduled to begin next spring, with dredging expected to begin in spring 2002. Once completed, the community will be able to reuse the CDFs for recreation and commercial marine use.

Even though it has taken nearly 18 years to get this far, the work done has had positive results. Threats posed by the site are being reduced while progress towards a final cleanup for all areas continues.

"Although the hot spot cleanup was expensive—about \$38 million—and time consuming, we were able to dredge 14,000 cubic yards of highly contaminated sediment in a safe way that did not affect water quality," Dickerson concluded. "We also gained valuable dredging experience that will help the upper and lower harbor cleanup proceed more efficiently."

For more information on the New Bedford Harbor Superfund site, contact David Dickerson at (617) 918-1329, Jim Hahnenberg at (312) 353-4213, or refer to the Region homepage at: <http://www.epa.gov/region01>.

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Profile On...

Brenda Jones

EPA Risk Assessor in Picture-Perfect Job

By Susan Pastor, U.S. Environmental Protection Agency

It's not often that employees can put a hobby to good use on the job, but when it does happen, it can be a match made in heaven.

At least, that is how it sounds when Brenda Jones, ecological risk assessor for the U.S. Environmental Protection Agency (EPA) Region 5 office, talks about her job. Jones, 41, incorporates photography into presentations as often as possible to better illustrate her topics. "I agree with the old adage; a photograph is worth a thousand words," she explained. "I've always thought that photos were very useful and, quite often, get the point across better than anything else."



Brenda Jones

Jones, who holds a bachelor's degree in biology from Florida State University and a master's degree in zoology from Southern Illinois University, has taken some college-level courses in traditional and digital photography in her spare time. "While EPA supports me, I do a lot on my own time as well," she continued. "I've taken evening and weekend classes to learn to use this equipment."

Those classes have included computer graphics courses such as Photoshop, Illustrator, and Dreamweaver. Jones, who

resides in suburban Chicago with husband Marty, said she often uses graphics as well as photography on the job. "I've jumped at opportunities to use what's available in our Superfund office," she added.

Although she takes her photography hobby seriously, the Florida native is equally serious about her job at EPA. Jones, who is one of two Superfund ecological risk assessors in the Chicago office, is called on to work in all of the Region's six states, including Wisconsin. She does the assessments or reviews the assessments submitted by state agencies or by companies determined responsible for site contamination. According to Jones, a typical ecological risk assessment, like that being done by the Wisconsin Department of Natural Resources (DNR) for the Lower Fox River, basically involves four steps.

First, she collects information by making a site visit or by reviewing literature or reports on the site. Next, she gathers information on the contaminants and their possible effects on plants and animals. She then brings together what she calls the "three lines of evidence" which are: who could be recipients or receptors, such as plants or animals, exposed to site contamination; what contaminants are involved; and what the impacts of the contaminants are on those receptors.

Finally, she describes the risks based on that information in the form of a report called an ecological risk assessment. "You have to know the habitat at the site because that can ultimately define the risk," she explained.

When not defining ecological risk for EPA, Jones sits on the board of the Midwest Chapter of the Society of Environmental Toxicology and Chemistry (SETAC), the largest professional organization for ecological risk assessors. She has also served as past president of the chapter. "It's very focused on environmental toxicology," she stated. "The annual national meetings usually attract 2,000 to 3,000 people."

Jones' experience isn't limited to ecological risk assessments. Prior to coming to EPA six years ago, Jones worked for an EPA contractor for nearly eight years. There, in addition to doing ecological risk assessments, she scored sites for Superfund listing, served as a project manager, worked as a part-time chemist in field labs, and conducted human health assessments.

However, when looking at risk from sites such as the Lower Fox River, Jones relies on her aquatic expertise, whether she is on site taking samples or in the office reviewing technical documents. "My husband says I'm never happy unless my feet are wet," she said. "Having grown up in Florida, it's hard not to be sensitive to aquatic systems."

Apparently, that sensitivity started at an early age. Recently, her mother found her seventh grade newsletter from the early 1970s, which included an article she had written on bioaccumulation of mercury in the food chain. At her 20-year high school reunion, an enlarged version of the yearbook was on display. "At the age of 17, I had said that I wanted to be an

environmental biologist with the EPA," she concluded. "While my title is ecologist, not environmental biologist, I'm pretty darn close, so I guess I wanted to do this for a long time."

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For More Information

Information Available at Local Libraries

The Intergovernmental Partners invite the public to review technical reports, fact sheets and other documents related to the Lower Fox River cleanup at information repositories set up in the reference sections of the following local libraries. Information repositories at the public libraries in DePere, Kaukauna, Little Chute, Neenah, and Wrightstown have been discontinued. However, binders containing fact sheets will be mailed to and maintained at these locations as well as at the repositories listed below.

Appleton Public Library

225 N. Oneida St.
Appleton
920-832-6170

Brown County Library

515 Pine St.
Green Bay
920-448-4381, ext. 394

Door County Library

104 S. Fourth Ave.
Sturgeon Bay
920-743-6578

Oneida Community Library

201 Elm St.
Oneida
920-869-2210

Oshkosh Public Library

106 Washington Ave.
Oshkosh
920-236-5200

Check out these Web sites:

<http://www.dnr.state.wi.us/org/water/wm/lowerfox> EXIT EPA ➞

<http://www.epa.gov/region5/foxriver/>

<http://www.fws.gov/r9dec/nrdar/nrdamain.html> EXIT EPA ➞

<http://www.fws.gov/r3pao/nrda/> EXIT EPA ➞

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